

Energetic Restoration of Alkalinity in Chemical Batteries through Cyclical Structural Reconstitution and Dissolution without Fluid Exchange

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Introduction

In most lithium ion voltage cell designs, the prevention of anode wear is a design priority as this property is linked to the longevity of the voltage cell. These cells are used where a high degree of energy density and a moderate degree of longevity are desired. In other batteries such as lead-acid batteries, an acidic electrolytic medium is merely used as a transport system for electrons. In lead-acid batteries, it is corrosion of the anode over time and not charge/discharge cycle quantity which determines battery longevity. In alkaline batteries, which are not rechargeable via the simple introduction of current, energy is stored chemically in a reaction which progresses and reduces in its intensity as chemical potential is depleted. Alkaline batteries have in common with lead-acid batteries that corrosion is a function of time and this limits the lifespan of alkaline batteries but means that alkaline batteries have as a key advantage an unlimited number of charge/discharge cycles. Ordinarily, when a chemical battery such as an alkaline battery is manufactured and sealed, the only way it could be replenished is by physically draining the (formerly) alkaline fluid and adding chemically potent fluid. This sort of process is advantageous in that it allows a battery to be restored to full capacity in a shorter period of time than is required for a rechargeable battery to achieve the same feat. While changing the fluid in such a battery is possible in certain contexts, it is not practical for most purposes. This publication will explore a novel approach which would enable the reconstitution of alkalinity to such a fluid in order to refresh a chemical battery in-situ with the aid structured electromagnetism in addition to generic current.

Abstract

This new concept seeks to make possible a restorable condition of the property of alkalinity through a combination of the introduction of electricity to a suspension incorporating atomized cuprates in conjunction with the assistance of a soliton emitter similar to that used for PhOto-Magnetic Propulsion (PoMP.) Soliton waves would be capable of doing what would ordinarily require a centrifuge, sc. separating the cuprate component of a suspension from the fluid in order to create a roughly solid mass when needed.

Whereas physical barriers would ordinarily be used to ensure separation of two or more admixtures in such a battery, if it were possible to energetically coerce one admixture to one physical side of a battery, it would be possible to electrically restore that element in isolation prior to permitting the, in this case, cuprate component to dissolve and reintegrate with the overall solution. This

can be possible in this regime for reason that cuprates, regardless of scale, can be made to be propelled kinetically via soliton interaction whereas other materials which might be used would not physically propelled by the waves. This means that while charging, the spent mixture would be energetically separated prior to the restoration of charge to the atomized (and temporarily conglomerated) cuprates. Soliton emission would hold the copper-based half of the suspension to one side of the cell until charging was completed and would be terminated with the suspension of charging.

When soliton emission is suspended, the atoms of copper would naturally dissolve into the overall mixture within a short period of time and would constitute a recharged battery. A key advantage of this ability to reconstitute an anode and to physically reposition an anode within a sealed battery architecture is that it supports rapid charging as well as increased longevity.

Conclusion

As the cuprate dissolves at the end of each re-charge cycle, the overall fluid is effectively rendered alkaline once again and thus, it is possible to energetically restore a chemical property in-situ for a battery system of enhanced value and usefulness.